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10/680,147	10/08/2003	Kazumi Kimura	03500.015639.1	5070

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/680,147

Applicant(s)

KIMURA, KAZUMI

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,15,18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,15,18 and 19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/917,742.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/08/03
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/917,742, filed on 07/31/01.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, 3-9, 15 and 18-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,677,972 in view of McIntyre et al. (U.S. 5,838,480).

The basic subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent except for the diffraction optical element being closest to the surface to be scanned.

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However, McIntyre et al. discloses an optical scanning system (Fig. 13) comprising an image formation means (F- θ lens system 36a) including one refractive optical element (34a) and one diffraction optical element (35a), which has diffractive element (surface 42a) on its exit surface (45a), for imaging the light beam (light beam emitted from the laser source 26) reflected and deflected by the deflection means (deflector 32) on the surface to be scanned (50), the diffraction optical element being positioned closest to the surface to be scanned (50). McIntyre et al. further indicates that the "placement the diffractive surface 42a on the second element 35a in the F- θ lens system 36a results in better optical performance" (col. 14, lines 1-16).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the diffractive element on the second lens in the imaging lens system as taught by McIntyre for better optical performance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

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Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by McIntyre et al.

McIntyre et al. discloses an optical scanning system (25) comprising an incident optical means (collimator lens 28 and cylindrical lens 30) for causing the light beam emitted from the light source means (laser source 26) to be incident on deflection means (deflector 32), image formation means (F- θ lens system 36a) including one refractive optical element (34a) and one diffraction optical element (35a) for imaging the light beam reflected and deflected by the deflection means on the surface to be scanned (50), the diffraction optical element being positioned closest to the surface to be scanned (50), and having the exit surface (45a) having a convex shape in the sub-scanning cross-section facing the surface to be scanned (col. 13, lines 46-56), wherein a diffraction grating being formed on the exit surface of the diffraction optical element (exit surface 45a having diffractive surface 42a).

With regard to claim 4, McIntyre et al. further teaches the refractive optical element (34a) having a meniscus shape (or concavo-convex shape) in a main scanning cross-section such that a concave surface faces the deflection means (Fig. 14A).

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6. Alternatively, claims 1, 4, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Toyoda (U.S. 6,208,450).

Toyoda discloses a scanning optical device (Fig. 23) comprising an incident optical means (collimator lens 2 and cylindrical lens 4) for causing the light beam emitted from the light source means (1) to be incident on deflection means (5), image formation means (f- θ imaging lens system 46) including one refractive optical element (46a) and one diffraction optical element (46b) for imaging the light beam reflected and deflected by the deflection means on the surface to be scanned (surface of the photosensitive drum 7), the diffraction optical element being positioned closest to the surface of the drum, and having both incident and exit surfaces (46b1 and 46b2) having a convex shape (or toric surfaces) in the sub-scanning cross-section (col. 15, lines 66 to col. 16, line 17), wherein a diffraction grating (48) being formed on the exit surface of the diffraction optical element (exit surface 46b2).

With regard to claims 4 and 18, Toyoda further teaches:

- the refractive optical element (46a) having a meniscus shape (or spherical surface) in a main scanning cross-section such that a concave surface faces the deflection means (Fig. 23);
- the diffraction grating (48) being formed on the exit surface (46b2) and the incident surface (46b1) having a convex shape in the sub-scanning cross-section facing the deflector (5) (Fig. 23).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6-8, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over McIntyre et al. in view of Suzuki et al. (U.S. 6,452,687).

McIntyre et al. discloses all the basic limitations of the claimed invention except for the tilt or shift adjusting means, the developing member, the transfer member, the fixing member that make up an image forming device, and the plurality light beams.

Regardless, it is old and well known in the printing art that the optical scanning device as taught by McIntyre et al. is the basic optical scanning unit used in most color image forming apparatus as evidenced by Suzuki et al., which discloses an scanning optical system for use in a color image forming apparatus (Fig. 3), which includes a plurality of light beams emitted from the respective scanning optical devices onto a plurality of image bearing member surfaces (photosensitive drums 1), corresponding developing units (4), transfer rollers (5), a fixing unit (25). Suzuki et al. further teaches the provision of a tilt adjusting system (Fig. 8A) and/or a shift adjusting system (Fig. 7A) for adjusting the position of the diffracting optical element (10c), which is part of the imaging lens system.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the modify the tilt adjusting system and/or

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shift adjusting system as taught by Suzuki et al. in the device of McIntyre et al. for the purpose of adjusting the curve of the scanning lines as well as to allow for registration of the multi-colored scanning lines.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



HAI PHAM
PRIMARY EXAMINER

April 2, 2004